UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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Colonel Jon J. Chytka, District Commander
U.S. Army Corps of Engineers
Savannah District Regulatory Division
100 W. Oglethorpe Ave.
Savannah, GA 31401

FEB 16 2016

Attention: Richard Morgan

Re: Glades Reservoir Draft Environmental Impact Statement, Hall and White Counties, Georgia, CEQ# 20150300

Dear Colonel Chytka:

Pursuant to Section 309 of the Clean Air Act (CAA) and Section 102(2)(C) of the National Environmental Policy Act (NEPA), the U.S. Environmental Protection Agency (EPA) reviewed the Draft Environmental Impact Statement (DEIS) for the Glades Reservoir developed by the U.S. Army Corps of Engineers (USACE), Savannah District, using a third-party contracting process as described in 40 CFR §1506.5. The DEIS was initiated because the USACE has received an application for a Department of the Army permit under Section 404 of the Clean Water Act (CWA) from Hall County for a proposed reservoir (SAS-2007-00388). The EPA previously provided scoping comments on April 12, 2012. In response to the public notice for the Section 404 permit, the EPA also provided the USACE with comment letters pursuant to the 1992, Section 404(q) *Memorandum of Agreement between the Environmental Protection Agency and the Department of the Army*, on September 18, 2009, and October 1, 2009. On January 23, 2012, the USACE requested that the EPA participate as a cooperating agency in the development of the DEIS and on January 31, 2012, we accepted the invitation. The Georgia Department of Natural Resources (DNR) and U.S. Fish and Wildlife Service (USFWS) were invited to participate as cooperating agencies and the DNR accepted while the USFWS declined. As a cooperating agency, we participated in numerous meetings, conference calls and public meetings and EPA appreciates the collaborative approach the USACE has taken during the development of the DEIS. The EPA has enclosed detailed comments on the DEIS (See enclosure).

The USACE identified that the overall project purpose is to provide a reliable source of public water supply capable of satisfying the projected unmet water demand in Hall County's Service Area during drought conditions for the projected population growth through the year 2060. Hall County proposes to construct an 11.7 billion gallon (BG) reservoir along Flat Creek in Hall County, Georgia, approximately 35 miles northeast of Atlanta. The reservoir would have a usable storage of 9.4 BG and a water surface area of 850 acres at a normal pool elevation of 1,180 feet above mean sea level. It would be operated as a pumped-storage reservoir and have a proposed dam height of 140 feet. A 37-million gallon per day (mgd) intake and pump station would be located on the Chattahoochee River, approximately 3 miles north of Belton Bridge, and

would transfer water from the river to the reservoir via a 48-inch diameter, 4-mile transmission pipeline. Water stored in the reservoir would be released into Flat Creek, flow downstream into Lake Lanier, and be withdrawn at an existing raw water intake operated by the City of Gainesville, Georgia.

The USACE screened and eliminated numerous alternatives and developed a final suite of 13 alternatives. These alternatives evaluated the potential for constructing reservoirs in two different locations (on Flat and White Creeks), evaluated different safe yields of these reservoirs, different annual average withdrawals from Lake Lanier and various ways of distribution. The USACE has not identified a preferred alternative in the DEIS citing the regulatory and pre-decisional nature of the Section 404 permitting process. It is anticipated the USACE will identify the preferred alternative in the NEPA Record of Decision (ROD) and the Least Environmentally Damaging Practicable Alternative (LEDPA) in the Section 404 CWA Statement of Finding.

As noted above, the EPA acknowledges the collaborative efforts of the USACE during the development of the DEIS. Despite these efforts, the EPA has significant concerns regarding the purpose and need, alternatives analysis, water conservation analysis, direct impacts to wetlands and water quality, and inconsistencies with the Apalachicola-Flint-Chattahoochee (ACF) Water Control Manual DEIS. The EPA is concerned that the USACE does not adequately substantiate the purpose and need for the project. The Georgia Office of Planning and Budget (OPB) released population projections in 2015 that indicate that Hall County's 2050 population projections are 318,828 and not OPB's previous projections of 729,192, which is 56.3% less than anticipated. Additionally, the Metropolitan North Georgia Water Planning District (MNGWPD) released updated water demand projections that indicate metro Atlanta will need 25% less water in 2050 than the previous analysis (2009) projected. None of this updated data was used in evaluating Hall County's water supply demand within the DEIS. Perhaps most significant is the recent announcement by the State of Georgia that the Glades Reservoir is no longer needed[1]. The State of Georgia has determined that Hall County's water supply needs through 2050 can be met without the Glades Reservoir.

The EPA is concerned that USACE did not consider an alternative that evaluated Hall County's water supply needs being met by receiving additional allocation from Lake Lanier. This alternative would avoid impacts to 39.2 acres of wetlands and 17.8 miles of streams. We believe that this alternative would appear to be the LEDPA under Section 404 of the CWA. Additionally, the USACE assumed in the No Action Alternative (NAA) or L60 that should Glades Reservoir not be constructed that the USACE Mobile District would grant an allocation of 60 mgd from Lake Lanier to Hall County. Considering that Hall County is currently only withdrawing 18 mgd from Lake Lanier, the EPA believes that this assumption is not representative of the current condition. The inclusion of withdrawals of 60 mgd within the NAA (L60) when compared to the Action alternatives lessens the potential impacts regarding Lake Lanier pool elevation and the flows from Buford Dam. The EPA believes that the Baseline Alternative (L18) more accurately reflects the current conditions of an 18 mgd withdrawal from Lake Lanier. The EPA notes that

[1] Judson H. Turner (Director Georgia Environmental Protection Division), Letter to Colonel Jon J. Chyka (District Commander Mobile District, US Army Corps of Engineers), January 29, 2015.

when the Action Alternatives are compared to the Baseline Alternative of L18, there are potentially significant increases in the impacts associated with the Lake Lanier pool elevation (i.e., 1 foot pool elevation decrease) and flows downstream of the Buford Dam (i.e., 10.6% reduction).

The USACE did not identify a preferred alternative in the DEIS. Therefore, the EPA has rated all of the Action Alternatives (Applicant's Proposed Alternative and Alternatives 1-11) within the DEIS as "EO-2", indicating that we have environmental objections with all of the Action Alternatives with additional information requested for a final document. The EPA rates the NAA (L60) as a "LO" indicating we have a general lack of objections to a true baseline alternative with modest increases in future allocation from Lake Lanier to Hall County. As previously stated, the State of Georgia has determined that the Glades Reservoir is no longer needed.

The EPA believes that the DEIS did not consider all reasonable, available alternatives which should have been analyzed in order to reduce potentially significant environmental impacts. The EPA also believes the USACE has not identified the LEDPA and we have recommended an alternative that the EPA considers to be the LEDPA. Should new alternatives and/or the project purpose be significantly changed, then the DEIS should be formally revised and made available for public comment. The EPA believes that the selection and implementation of one of the Action Alternatives has the potential to be inconsistent with current state designated uses as established by the state water quality standards in portions of the river system. This has the potential to cause exceedances of applicable state water quality criteria. The EPA's review has identified environmental impacts that should be avoided or minimized in order to adequately protect the environment. Following the collaborative process used during the development of the DEIS, the EPA would like to continue to work with the USACE to ensure the project is consistent with water quality standards and protective of aquatic resources.

The EPA appreciates the opportunity to provide comments on the proposed Glades Reservoir DEIS and looks forward to working with you to address our concerns. If you have any questions regarding our comments, please contact Jamie Higgins of the NEPA Program Office at (404) 562-9681, or at Higgins.jamie@epa.gov.

Sincerely,

G. Alan Farmer
Director
Resource Conservation and
Restoration Division

James Giattina
Director
Water Protection Division

Enclosure: EPA Detailed Comments

Enclosure
EPA's Detailed Comments on the Glades Reservoir DEIS
CEQ No.: 20150300

Purpose and Need

Overall Purpose: The EPA agrees with the USACE's independent determination of the overall project purpose as being "to provide reliable water supply for the residents and businesses of Hall County, Georgia" (pg. 1-22) without narrowly defining the purpose so as to restrict consideration of practicable alternatives. The EPA also agrees with the USACE's finding that the project is not water dependent as defined in the regulations implementing CWA Section 404 in that "not all of the various practicable alternatives that might be considered to provide a reliable water supply would require access to, proximity to, or siting within any special aquatic site" (pg. 1-22). The DEIS Purpose and Need is the foundation from which to develop a suite of alternatives. The presumption that practicable alternatives not involving special aquatic sites are available is key to the alternatives analysis and determination of the LEDPA. However, the EPA has significant concerns regarding the USACE's Purpose and Need evaluation as listed below.

State of Georgia Determination of Need: The EPA notes that the USACE used the State of Georgia's 2013 water allocation request as a basis for evaluation of water demand within the DEIS. However, since the publishing of the DEIS, the State of Georgia has revised its 2050 population projections and submitted an updated Water Supply Request for the area served by Lake Lanier (including releases from Buford Dam to accommodate withdrawals from the Chattahoochee River above the confluence with Peachtree Creek) to the Mobile District (December 2015 request), which significantly lowers population and future water demand estimates for Hall County. Since the issuance of this DEIS, the State of Georgia has provided comments on the Apalachicola Coosa Flint (ACF) Water Control Manual (WCM) Update DEIS and in those comments determined that the Glades Reservoir is not needed for water supply, which is the current defined purpose for the Glades Reservoir project. The State commented on the ACF WCM DEIS that, "Given the revised 2050 needs projections contained in the 2015 Request, it's clear that Glades Reservoir is no longer part of any strategy to meet the water supply needs of the State through 2050." [1] The State also says "... unequivocally that Glades no longer remains part of the region's 2050 water supply strategy." The State of Georgia also states that, "The Corps is required to evaluate only 'reasonable alternatives' (40 C.F.R. § 1502.14(a)) and Glades, as contemplated in the Glades DEIS and the DEIS, is no longer reasonable or even viable." The EPA has serious concerns regarding the current purpose and need statement outlined in the Glades Reservoir DEIS. Comments from the State of Georgia have made it clear that the Glades Reservoir is not needed for water supply for Hall County and, therefore, the current purpose and need cannot be supported. Should new alternatives and/or project purpose be significantly changed, then the DEIS should be formally revised and made available for the public and agency comment.

Recommendation: The EPA strongly recommends the USACE consider the State of Georgia's above mentioned letter before moving forward in the NEPA process.

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[1] Judson H. Turner (Director Georgia Environmental Protection Division), Letter to Colonel Jon J. Chyka (District Commander Mobile District, US Army Corps of Engineers), January 29, 2015.

Water Demand and Population Forecast Data: The EPA acknowledges that the State of Georgia's 2013 water allocation request and the subsequent December 2015 allocation request are of great importance as the metro Atlanta's population continues to grow. The EPA supports the consideration of sustainable solutions to future water supply needs. However, in August 2015, the Metro North Georgia Water Planning District (MNGWPD) released updated water demand projections that indicate metro Atlanta will need 25% less water in 2050 than the previous analysis (2009) projected. The Georgia Office of Planning and Budget (OPB) also released population projections in 2015 that indicate that the Hall County 2050 population projections are 318,828 and not OPB's previous projections of 729,192, which is 56.3% less than anticipated. Given the date of release of the new water demand and population growth projections, it is understandable that the latest numbers were not included in Georgia's 2013 allocation request and the current DEIS.

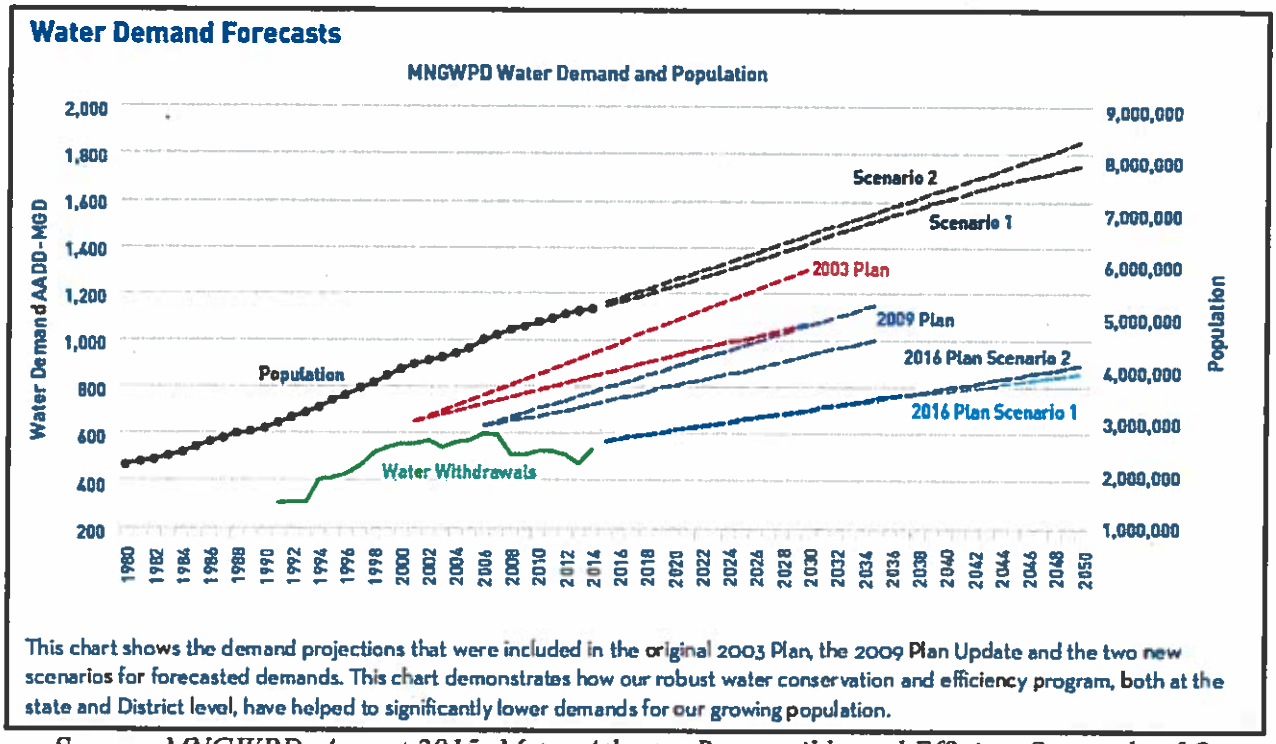
Recommendation: Given the significant difference in the numbers and the potential effect on the analysis, the EPA recommends that the FEIS include the most recent data on water demand and population growth projections.

Reservoir Storage: The EPA is concerned that the DEIS does not clearly demonstrate whether storing water in the Glades Reservoir is a gain (or a loss) to the ACF basin. It is unclear how impounding water (otherwise flowing from the Chattahoochee River into Lake Lanier) would add water into the system. This is essentially the same water that would be diverted from Lake Lanier to store in the Glades Reservoir. The EPA is concerned that the USACE has not demonstrated that the same volume of water stored in the Glades Reservoir could later be withdrawn from Lake Lanier at no net loss to the system. The EPA is also concerned that the USACE has not adequately documented the net gains in storing water in the Glades Reservoir versus the net losses due to evaporation, infrastructure leaks, etc. The EPA contends that this water could be directly withdrawn from Lake Lanier rather than from a new reservoir without incurring unnecessary and significant impacts to aquatic resources (e.g., loss of streams and wetlands).

Recommendation: The EPA recommends that the USACE better describe the rationale for storing water within Glades to meet Hall County's future water demand rather than having water withdrawn directly from Lake Lanier. The EPA also recommends the USACE better demonstrate the net gains of storing water in the Glades Reservoir versus net losses in the FEIS. Additionally, for purposes of the CWA review, the EPA recommends that the USACE better explain how withdrawing water directly from Lake Lanier is not considered the LEDPA.

Water Demand Forecasting

Water Demand Projections Lower than Indicated in DEIS: The DEIS (Section 5.1.3.1) states that it "is unlikely that additional conservation measures would result in a significant reduction in Georgia's 2040 need." However, projecting future demand based on historical use ignores water use behavior shifts and regulatory changes. Many utilities have in recent years repeatedly revised their demand forecasts downward. Below is a graph that illustrates the significant decreases in projected demand and population in the MNGWPD.



Source: MNGWPD. August 2015. Metro Atlanta: Responsible and Efficient Stewards of Our Water Resources.

These decreasing demand forecast trends specifically hold true for Hall County, as well. The demand forecast released by MNGWPD in August 2015 predicts approximately 25% lower demand overall for the district, with projections for Hall County (31-34 mgd) at least 50% lower than those predicted by the USACE in the Glades Reservoir DEIS (72.9 mgd in year 2060) or the ACF Water Control Manual Update DEIS (68 mgd in year 2050). See table below:

Comparison of 2060 water demand forecast in the Glades DEIS, 2050 water demand forecasts from ACF WCM Update DEIS, and MNGWPD 2050 water demand forecast (2015)

	Glades DEIS 2060 forecast (mgd)	ACF WCM Update DEIS 2050 forecast (mgd)[2]	MNGWPD 2050 forecast (mgd)	
			Scenario 1	Scenario 2
Forsyth	-	66	48	60
Gwinnett	-	304	132	145
Hall	72.9	68	34	31

The USACE states in the DEIS that it has reviewed the MNGWPD's draft population projections and water demand forecasts, and characterized them as significantly lower than the previous forecast published by OPB and the forecast in the District's 2009 Water Supply and Conservation Development Plan. The USACE has informed the Applicant of the updated 2015 OPB population projections, and that this new information will be considered in the FEIS.

[2] US Army Corps of Engineers, Mobile District, *Apalachicola Chattahoochee Flint Water Control Manual Update Draft Environmental Impact Statement*, Vol. 3, Appendix B, p 18, Oct 2015.

Although the Gainesville Public Utility Department (GPUD) service population grew by 40,000 people from 2000-2010, the water production rate has not increased, and has not had a significant increase since 1990. In addition, Gainesville indicated that "In July 2013, the system pumped on average 2.4 million gallons per day (MGD) less than in July 2012 and 3.3 MGD less than July 2011" (Appendix D, Attachment 3). The DEIS does not indicate that these declining values are consistent with the demand projections used.

MNGWPD's prediction for water demand being 50% lower than that projected in the DEIS is of critical relevance to the purpose and need for the proposed project. Hall County's 2050 water demand is forecast to be 31-34 mgd, considerably lower than that from the Glades Reservoir DEIS (72.9 mgd).

In the Section 404 permit application, the Applicant described a scenario whereby Gainesville/Hall County could possibly be allowed to withdraw up to 44 mgd on an annual average basis from Lake Lanier. Allocating water in Lake Lanier to meet demand of only 34 mgd in 2050 would appear to be the more feasible alternative for Hall County's water supply current and future needs.

Recommendation: The EPA strongly recommends that the USACE re-consider the elimination of water conservation measures at the second screening phase. Additionally, we recommend consideration be given to how measures implemented by the State of Georgia have and will continue to improve efficiency of water use, which might also negate the need for a new reservoir. As previously stated, the EPA recommends that the USACE re-evaluate the purpose and need for the Glades Reservoir based on the MNGWPD's most recent water demand projections and the State of Georgia's assessment that the Glades project is not needed to meet the State's future water supply needs.

Service Area: The DEIS states in Section 1.3.3, "Service Area for the Proposed Project" that "Hall County has initiated this application for additional water supply, as they feel the County's future growth is restricted without additional water supplies for the region. The City of Gainesville has issued a proclamation in support of the Application, as they will ultimately be responsible for treatment and distribution of the raw water." (pg. 1-21) Additionally, Gainesville is currently the largest provider of water service in Hall County, with a service area covering approximately 400 square miles of the City and unincorporated Hall County. The USACE states, "Hall County and Gainesville have an intergovernmental agreement (established in 2006) which delegates the authority to provide potable water for Hall County to Gainesville Department of Public Works (GPUD). Hall County has initiated this application for additional water supply, as they feel the County's future growth is restricted without additional water supplies for the region. The City of Gainesville has issued a proclamation in support of the Application, as they will ultimately be responsible for treatment and distribution of the raw water." (pg. 1-11). It is the EPA's understanding that the City of Gainesville has an agreement with Hall County to ultimately take ownership of Hall County's water treatment and distribution system. The EPA is concerned about the lack of discussion regarding the City of Gainesville's ultimate responsibility for treatment and distribution of any raw water obtained via the project proposed by Hall County. Customers that the County plans to include in its expanded service area are currently either on

well water or do not exist yet; therefore, infrastructure may not be in place to serve some of the additional customers expected to be served by the proposed activities.

Recommendation: Given the fundamental importance of defining the service area as the basis of the service population and, therefore, demand calculations, the EPA recommends that the USACE provide a definitive description of the service area with firm commitments to be included in the FEIS. The EPA recommends that the FEIS disclose Hall County and/or City of Gainesville's plans for developing infrastructure to serve the additional customers coming online from either well water or as new customers in the County, including the referenced proclamation.

Poultry Operations: The DEIS provides year 2005 withdrawals of groundwater by the food/poultry industry as 1.40 mgd in Table 3.19. Elsewhere, it describes current industrial users (referencing March 2011 status of non-farm permits) as including two poultry operations in Hall County. The total permitted withdrawal under non-farm permits is given as 2.70 mgd on a monthly average basis, but actual groundwater use for these permittees in 2012 was only about 0.74 mgd based on the monthly withdrawal records submitted by each permittee to the Georgia EPD. Previously, it has been stated that a new requirement by the United States Department of Agriculture tripled water usage on a per-bird basis, and that this was a driver of increased water use.

Recommendation: The EPA recommends that the source (e.g., regulation) of the USDA requirement for water volumes required for poultry be referenced in the FEIS. It should be clarified when this requirement went into effect and was implemented, and whether water use by the major commercial poultry operations identified already accounts for that requirement. It should be clarified whether one of the three major poultry operations previously described is no longer in business. The FEIS should clearly state whether any anticipated change in demand for the poultry operations in Hall County has been accounted for in the demand projections used.

Sizing a Reservoir Commensurate with Need: Glades Reservoir was originally proposed to meet a larger projected need. The Section 404 permit application submitted in 2011 was described as providing safe yield of 72.5 mgd. The reservoir size needed to meet that was calculated as having an elevation of 1180', a surface area of 850 acres, and a volume of 11.7 billion gallons.

Changes in population and demand forecasts have since led the Applicant to recalculate the safe yield needed as being approximately 50 mgd—a reduction of 30%—but the sizing of the proposed reservoir has not changed. This disconnect implies that unnecessary impacts would be incurred due to oversizing of the proposed reservoir. Further decreases in projected demand (MNGWPD August 2015) should lead to further reductions in safe yield needed, if any.

Recommendation: The FEIS should consider alternatives or revised configuration of the Glades Reservoir so as to size the project appropriately. An oversized reservoir incongruent with the scope of the need would incur unwarranted adverse impacts to aquatic resources that should be avoided or minimized, per 40 CFR Part 230.

Alternatives Analysis

No Action Alternative (NAA): No Action Alternative (L60) – The EPA has significant concerns with the proposed NAA because it does not meet the true intent of a No Action alternative under NEPA and as described by the Council on Environmental Quality (CEQ). In CEQ's '40 Most Asked Questions', the "no action" alternative is described as "…'no change' from current management direction or level of management intensity. To construct an alternative that is based on no management at all would be a useless academic exercise. Therefore, the no action alternative may be thought of in terms of continuing with the present action until that action is changed."[3] By assuming the State of Georgia will receive a 60 mgd allocation from Lake Lanier within the no action alternative, the EPA believes that the "no action" alternative inherently becomes an action alternative. A 60 mgd allocation from Lake Lanier is not the present, baseline condition, or a reasonable foreseeable future condition. The current Hall County Lake Lanier allocation of 18 mgd is treated as a baseline beyond which additional allocations are questionable. There is also no documented evidence concluding that should the State be granted the additional allocation, the State will provide 60 mgd of that allocation from Lake Lanier to Hall County. Further, the current ACF WCM DEIS did not allocate the State of Georgia the full amount of its requested allocation. The allocation amount will be finalized in the ACF WCM FEIS and Record of Decision (ROD). A more prudent course of action is to wait until the USACE Mobile District has made its final allocation decision before deciding a preferred alternative for the Glades Reservoir project. The NAA (L60) should be evaluated as an Action Alternative where the drinking water needs of Hall County can be met by an additional allocation from Lake Lanier.

Furthermore, the assumption of 60 mgd additional allocation within the 'No Action' has inappropriately skewed the alternatives analysis and most importantly the environmental consequences analysis (Chapter 4). By including the 60 mgd allocation in the NAA (L60) and then comparing the 'No Action' to the suite of action alternatives, the potential impacts of the action alternatives appear to be lessened and the true impacts are not fully described or disclosed to the public. On page 4-66 of the DEIS, the USACE acknowledges that a "1-foot decrease to Lake Lanier's water surface level going from the Baseline Conditions (L18) to 2060 conditions…" However, throughout the DEIS the USACE dismisses the direct impact of this decrease by stating: "The 1-ft decrease, again, is a result of the overall system demand increase in the future (discussed further in the Cumulative Effects Section) rather than the effects of adding the reservoir to the ACF system." Within the Cumulative Effects Section (pg. 4-231), the USACE states: "The projected 2060 demand for the Metro Atlanta area is based on projections provided by Georgia EPD (2013 water supply request). These projections are considered to be the maximum Chattahoochee River water withdrawals for the Metro Atlanta area for the 2060 conditions for the purposes of this DEIS. These net withdrawals are distributed among five nodes in the ResSim model: Buford, Norcross, Morgan Falls, Atlanta, and Whitesburg." The State of Georgia's 2013 request (upon which the DEIS is based) does not specifically identify that 60 mgd of water withdrawal from Lake Lanier will be needed for Hall County[4]. In this request, the State did not specifically identify Lake Lanier water withdrawal needs by county, rather, the request states: "The foregoing information affirms and updates Georgia's 2000

[3] 40 Most Asked Questions, Question No. 3, 46 Fed. Reg. 18026, 18027 (1981).

[4] Judson H. Turner (Director Georgia Environmental Protection Division), Letter to Jo-Ellen Darcy (Assistant Secretary of the Army for Civil Works, January 11, 2013.

request that the USACE operate Lake Lanier to meet water supply needs of 705 mgd annual average gross withdrawal, including 297 mgd annual average gross withdrawal from Lake Lanier and 408 mgd annual average gross withdrawal from the Chattahoochee River between Buford Dam and the confluence of the Chattahoochee River and Peachtree Creek." (pg. 11) The EPA is concerned that the USACE has not adequately documented the relationship between the State of Georgia's 2013 request and the forecasted 60 mgd "system demand" withdrawals outlined in the NAA. A further complication is that the State of Georgia clearly states in their ACF WCM DEIS comment letter that there is no need for Glades Reservoir to meet the States' future water demand needs. Furthermore, the State of Georgia did not include Glades Reservoir in their recent (December 2015) water allocation request to the Mobile District.[5]. The State's 2015 Water Supply Request clearly establishes that Hall County's 2050 demand (as projected by MNGWPD, August 2015) can be met through an allocation from Lake Lanier.

Recommendation: The EPA recommends that the USACE identify the current "baseline" condition as the NAA or develop an accurate 'No Action' alternative that does not assume that the State of Georgia will be granted additional allocation from Lake Lanier. The NAA should reflect current management/demand for Hall County of 18 mgd. The EPA also recommends that the Savannah District consider identifying a preferred alternative after the Mobile District has signed a ROD that identifies the final allocation from Lake Lanier for the State of Georgia and Hall County.

System Demand: The EPA disagrees with the USACE' assertion that the 1-foot decrease is a result of "the overall system demand". The EPA is concerned that the USACE has not adequately documented its rationale for this "system demand" other than stating 60 mgd is the 2060 water demand for Hall County. Also, given that the net withdrawals are distributed downstream of Lake Lanier, the EPA is concerned that the USACE does not adequately discuss the relationship between downstream net withdrawals and elevation impacts at Lake Lanier. The USACE also acknowledges in the Cumulative Effects section (pg. 4-232), "A decrease of approximately 5.5 feet in the Lake Lanier minimum daily pool level during a critical drought period similar to the 2007-2009 drought." The EPA is concerned that 5.5 feet of impacts at Lake Lanier during drought periods is not adequately discussed in the DEIS. The USACE does not discuss how these impacts during periods of drought will impact Lake Lanier storage, recreation, hydropower, fish and wildlife, and water quality. The USACE also did not use the latest MNGWPD water demand projections or OPB's population growth projections both of which indicate significant decreases then reflected in the DEIS (See above comment). The EPA is concerned that the USACE's system demand concept is not properly characterized in the DEIS and results in skewing the environmental impacts.

Recommendation: As previously discussed, the EPA recommends that the USACE consider additional allocation from Lake Lanier to meet Hall County's water demand needs as a separate Action Alternative. At a minimum, the USACE should better document and describe its rationale for claiming that loss of 1' of elevation of Lake Lanier is due to "system demand".

[5] Judson H. Turner (Director Georgia Environmental Protection Division), Letter to Colonel Jon J. Chytka (District Commander, Mobile District, USACE, December 4, 2015.

Consideration of Lake Lanier Allocation as an Action Alternative: The EPA is concerned that the USACE has not adequately considered an alternative that assumes Hall County's water demands could be met by additional allocation from Lake Lanier. The EPA believes that it is reasonable to evaluate an alternative that all of the Hall County water supply needs could be met by approved additional Lake Lanier allocation from the Mobile District. The EPA recognizes the decision to reallocate additional storage to the State of Georgia is within the jurisdiction of another USACE District; however, the decision will be made by the same federal agency, the USACE. Furthermore, the CEQ's guidance explains the consideration of alternatives can be beyond the scope of the lead federal agency as long as it is considered reasonable. The EPA again refers to the CEQ's '40 Most Asked Questions' that state: "An alternative that is outside the legal jurisdiction of the lead agency must still be analyzed in the EIS if it is reasonable. A potential conflict with local or federal law does not necessarily render an alternative unreasonable, although such conflicts must be considered. Section 1506.2(d). Alternatives that are outside the scope of what Congress has approved or funded must still be evaluated in the EIS if they are reasonable, because the EIS may serve as the basis for modifying the Congressional approval or funding in light of NEPA's goals and policies. Section 1500.1(a)."
As previously stated, the State of Georgia claims, "the State asserts that Glades will not be constructed and operated for water supply during the current 2015 Request horizon [2050] because it is no longer needed for this purpose."[6] Given this recent development, the only viable action alternative is for Hall County to meet its water supply needs through an additional allocation from Lake Lanier.

Recommendation: Under NEPA, the USACE is required to consider reasonable alternatives even if they are outside the agency's jurisdiction. Therefore, the EPA recommends that the USACE consider an alternative that evaluates Hall County's unmet water supply needs by additional storage allocation from Lake Lanier.

Characterization of Selection of the LEDPA: The regulations at 40 CFR 230.10(a) stipulate that "no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences." Meeting Hall County's unmet need in 2060 by additional allocation from Lake Lanier would appear to be the LEDPA, but this issue is not fully analyzed nor discussed in the DEIS.

Recommendation: The EPA recommends that the USACE better describe addressing Hall County's unmet needs in 2060 by an additional allocation from Lake Lanier in relation to the LEDPA

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Characterization of Impacts

There are numerous examples of how comparing the Action Alternatives to the NAA (that assumes additional allocation from Lake Lanier) as described below:

[6] Judson H. Turner (Director Georgia Environmental Protection Division), Letter to Colonel Jon J. Chyka (District Commander Mobile District, US Army Corps of Engineers), January 29, 2015.

Impacts to Flows: The EPA has concerns regarding the characterization of impacts. On page 4-61, Table 4.17 the USACE states, "The flow reduction from Baseline to all action alternatives and to the No Action Alternative is caused by the increase in system demand in the entire basin, rather than the addition of the reservoir (this would be discussed further in the Cumulative Effects section). There is no difference between the action alternatives and the No Action Alternative (L60) at all nodes." As previously discussed, the EPA is concerned that the "system demand" rationale is confusing and is not fully documented in the DEIS. As previously stated, the NAA assumes that the Mobile District will grant the State of Georgia's reallocation request. It is EPA's opinion that this assumption is inappropriate to include in the 'No Action'. As evident in Table 4.18, comparing the Baseline to each Action Alternative does decrease releases (thus flows) from the Buford Dam.

Recommendation: The EPA recommends that the USACE identify the current baseline condition as the NAA or develop a "No Action" alternative that does not assume the State of Georgia will be granted an additional allocation from Lake Lanier. The EPA recommends that the USACE compare the corrected No Action (without the inclusion of 60 mgd withdrawals) against the Action Alternatives and reflect this updated analysis within the FEIS.

Impacts to Lake Lanier Pool Elevation: On page 4-66, Table 4.19, the USACE states, "The 1-ft decrease, again, is a result of the overall system demand increase in the future (discussed further in the Cumulative Effects Section) rather than the effects of adding the Glades Reservoir to the ACF system. To isolate the effect of the reservoir, comparison is done between the action alternatives and the No Action Alternative. When comparing the No Action Alternative (without reservoir and all future water supply comes from Lake Lanier) to the Proposed Project and its alternatives, there is generally negligible difference in water surface levels at all USACE projects. For Lake Lanier, all action alternatives involving Glades Reservoir (Alternatives 1 to 9) result in slightly higher water surface levels than the No Action Alternative; however, the difference in lake levels (0.03 to 0.04 foot, or 0.4 to 0.5 inch) is not discernable to human eyes. Comparing Alternatives 1-9 (Glades alternatives) to Alternatives 10 and 11 (White Creek reservoir alternatives), the Glades alternatives offer a consistent, slightly higher increase in pool elevation at Lake Lanier. However, this increase (less than half an inch) in water level is not discernible to human eyes." The EPA is concerned that this statement misrepresents the project's impacts to the Lake Lanier pool elevation. Comparing the lake elevation to a NAA that includes additional allocation against the Action Alternatives gives the appearance that lake elevation levels will increase by 0.4 to 0.5 inches. The EPA believes that a much more accurate comparison is to compare the Action Alternatives to the Baseline, which would be a 1' decrease in pool elevation and up to 5.5' in drought conditions. There is a significant difference between 1' and 0.5 inches.

Recommendation: The EPA recommends that the USACE identify the current baseline condition as the NAA or develop a "No Action" alternative that does not assume the State of Georgia will be granted an additional allocation from Lake Lanier. The EPA recommends that the USACE compare the corrected No Action (without the inclusion of 60 mgd withdrawals) against the Action Alternatives and reflect this updated analysis within the FEIS.

Impacts to Recreation: On Page 4-174 of the DEIS, the USACE states, "Lake Lanier is predicted to fall below the recreational impact levels less frequently (36 times) as compared to the NAA (38 times) when all of 2060 demand is met by Lake Lanier water supply storage allocations." The EPA believes that a more accurate comparison would be to baseline conditions. For example in Table 4.29, the Applicant's alternative would have the pool falling below recreation impact levels 65 times and the No Action has 65, which would mean the delta between the No Action and Applicant's alternative would be 0. However, if one compares the Applicant's alternative of 65 to the Baseline of 54, the change or additional times the Lake Lanier levels fall below impact levels would be 11 times. Eleven times is obviously much more significant than one time and the EPA recommends that the USACE correctly disclose these impacts in the FEIS.

Recommendation: The EPA recommends that the USACE identify the current baseline condition as the NAA or develop a "No Action" alternative that does not assume the State of Georgia will be granted an additional allocation from Lake Lanier. The EPA recommends that the USACE compare the corrected No Action (without the inclusion of 60 mgd withdrawals) against the Action Alternatives and reflect this updated analysis within the FEIS.

Impacts to Lake Lanier Storage: On page 4-70 (and throughout the DEIS), the USACE states, "...additional storage from Glades Reservoir is shown to increase the lake level by 0.5 feet (Alternatives 1-6) when compared to meeting all of the demand solely from Lake Lanier (No Action Alternative). The EPA believes that this is a confusing description that does not disclose the true impacts. When compared to the Baseline condition, Alternatives 1-6 causes a loss of 1' to the system.

Recommendation: The EPA recommends that the USACE identify the current baseline condition as the NAA or develop a "No Action" alternative that does not assume the State of Georgia will be granted an additional allocation from Lake Lanier. The EPA recommends that the USACE compare the corrected No Action (without the inclusion of 60 mgd withdrawals) against the Action Alternatives and reflect this updated analysis within the FEIS.

Conservation/Efficiency

Conservation Efficiency Methodology: The EPA has concerns regarding the methodology used to evaluate conservation and efficiency measures implemented by the Gainesville Public Utility Department (GPUD) as described below:

* The EPA finds the use of the GPUD's system management and conservation programs as representative of current status of the majority of the population served, and—more importantly—of the system as it would be managed into the future as projected for review of the proposed project, to be an appropriate approach to assessing conservation and efficiency potential of the system.
* The EPA also concurs with the approach to not consider conservation/efficiency Scenario 1, as it does not involve complying with current state requirements. The EPA believes that this could result in a situation of non-compliance with efficiency requirements and is an inappropriate baseline from which to propose developing additional infrastructure.

* The DEIS describes replacement of over 85% of system water meters with smart meters since 2003 to improve meter accuracy, and continuous replacement of remaining meters in the next few years until reaching 100% replacement. EPA commends the GPUD on its meter replacement program.
* The DEIS states, "As its service area continues to expand to serve future customers in Hall County, GPUD's system management and conservation programs will be implemented in the majority of the study area for this DEIS." This involves a commitment on the part of Hall County; however, this has not been documented in the DEIS.

Recommendation: The EPA recommends that the FEIS capture a written commitment from Hall County documenting system management and conservation program plans.

* The EPA agrees with the Applicant that using per capita figures based on total demand (i.e., including commercial users) would be inappropriate, especially as relative category demand shifts with time. If residential use is the basis of projected unmet demand, calculations should be based on projections for residential per capita use.

Recommendation: Dividing total water distributed by total population is not an accurate means of determining gallons per capita per day (gpcd) when only 43% of use by volume is residential. Increasing use due to population increase should only be attributed to the portion of the use represented by residential users. If commercial/industrial use is expected to change, the portion of the baseline use they represent should be used as the basis for that projection.

* The DEIS states, "Published data on average per-capita indoor water use and average per-capita end use have been combined with the number of water users to calibrate the volume of water allocated to specific end uses in each customer billing category." (pg. D-26)

Recommendation: The EPA recommends that the USACE consider use patterns specific to this system. Housing, plumbing, fixture, and appliance age are big determinants of how water is used, as is outdoor usage, and they vary with geography, climate, and community makeup (housing type, socioeconomics, etc.). System-specific information would be more useful in addressing end uses than "typical" averages.

* According to *MNGWPD — 2012 Activities & Progress Report*, from 2001 to 2010, the region's water use has dropped from 149 gpcd to 110 gpcd, even though the population has increased by one million people. GPUD's use, however, *increased* from 127 gpcd to 143 gpcd between FY2009 and FY2012. The DEIS does not discuss the drivers behind this increase. An increase in the *residential* use rate for GPUD (from 46 gpcd to 59.5 gpcd) presented in the DEIS appears to explain only half of this increase. The reference, *Handbook of Water Use and Conservation,* gives <45.2 gpcd as a target for a conserving household.

Recommendation: The FEIS should clarify the basis of the "per capita" values, particularly whether which end user categories are included. The FEIS should explain the observed increases in per capita use. Examination of the reason for the loss of efficiency expressed in GPUD's numbers (from 127 gpcd to 143 gpcd between FY2009 and FY2012) is a critical element in evaluating the demand forecast presented by the Applicant, and should be examined in the FEIS.

* With the GPUD's ongoing water loss reduction programs, the Gainesville/Hall County system might consider extending their goal to maintain the 12.2% rate throughout the 2060 planning horizon" (pg. D-23). It is unclear from the DEIS as to whether GPUD will continue to maintain reduced non-revenue water (NRW) level past the 2060 planning.

Recommendation: The EPA recommends that the USACE better describe the likelihood that the GPUD extending their water loss reduction goals beyond 2060.

*Single year production and billing data have been used as a baseline.

Recommendation: The EPA recommends using at least five years' worth of data as a starting point to be inclusive of more varied conditions (e.g., weather patterns in a single year can strongly affect outdoor water usage).

* Although billed irrigation use appears to be small (according to the billed quantity information on pg. D-10), this is likely because there are few, if any, residential irrigation meters on the system. According to Decision Support System (DSS) model, outdoor use is in fact approximately 22% of single family residential use. With single family use comprising 38.1% of total use, outdoor single family residential use is around 8% of total use. In response to the EPA Region 4 Water Efficiency Guidelines (WEG) item that states, "...should have at least one program which provides incentives for minimizing irrigation needs for existing landscapes", the Applicant responded, "[No], but do have "WaterSmart" demonstration garden." (pg. D-22) The EPA notes that the DEIS does not document whether the GPUD has an incentives program to minimize outdoor irrigation.

Recommendation: The EPA recommends that the USACE document additional potential means of making outdoor residential use more efficient in the FEIS.

Inconsistencies between Glades Reservoir DEIS and the Apalachicola Chattahoochee Flint Water Control Manuel (ACF WCM) DEIS

The EPA understands that the Glades Reservoir DEIS and the ACF WCM DEIS have different purposes and are being developed by two different USACE Districts. However, the EPA is concerned with the inconsistencies displayed between the two DEISs. The EPA has specific concerns as discussed below:

The EPA is concerned that pertinent information recently published in the Mobile District, USACE ACF WCM DEIS[7] was not disclosed in the Glades Reservoir DEIS. The Glades Reservoir DEIS's NAA includes the assumption that the Mobile District will grant the State of Georgia the full 297 mgd withdrawal allocation; however, the Preferred Action Alternative (PAA) within the ACF WCM DEIS indicates that the Mobile District anticipates granting the State of Georgia a 165 mgd allocation from Lake Lanier. This is significantly lower than flow evaluated within the Glades Reservoir DEIS and could greatly impact the alternatives analysis as well as the outcome of the preferred alternative.

[7] US Army Corps of Engineers, Mobile District, *Apalachicola Chattahoochee Flint Water Control Manual Update Draft Environmental Impact Statement*, Oct 2015.

As a part of modeling for all alternatives (including the NAA), the Savannah District states, on page 4-232, "On average, an estimated 1-foot decrease for daily pool level at Lake Lanier; and a 0.05-foot decrease in daily pool level at West Point Lake…A decrease of approximately 5.5 feet in the Lake Lanier minimum daily pool level during a critical drought period similar to the 2007-2009 drought." In the Glades Reservoir DEIS, the Savannah District assumes in the No Action alternative (L60) that Hall County will be granted 60 mgd of the 297 mgd requested by the State of Georgia. The No Action alternative including the 60 mgd allocation was modeled to show the daily pool elevation of Lake Lanier. On page 4-66 of Glades Reservoir DEIS, the Savannah District states, "There is a 1-foot decrease to Lake Lanier's water surface level going from the Baseline Conditions (L18) to 2060 conditions (including the Proposed Project, all action and No Action Alternatives). The 1-ft decrease, again, is a result of the overall system demand increase in the future (discussed further in the Cumulative Effects Section) rather than the effects of adding the reservoir to the ACF system." It is the EPA's understanding that Mobile District in the ACF WCM DEIS modeled impacts to Lake Lanier pool elevation using 128 mgd (which includes the last official water contract agreement of 20 mgd). In discussing the alternative that considers solely the State of Georgia's water allocation request (Alternative 7D) on pg. 6-15 (ACF WCM DEIS, section 6.1.1.1.1.6) the USACE states, "…daily water surface elevations at the 90-percent exceedance level (Figure 6 1-4) are essentially the same, except that median daily water surface elevations in July through early September would likely range up to 0.5 ft. lower than the elevations under the NAA." When the Mobile District discusses Alternative 7E (Georgia allocation request plus Glades Reservoir), the USACE states, "This alternative is identical to Alt7D except that the reallocation of storage in Lake Lanier would be reduced to support 237 mgd and an additional 40 mgd would be available from Glades Reservoir... " The EPA is concerned that there is an inconsistency between the water supply impacts at Lake Lanier between the Glades Reservoir DEIS (of 1' elevation) and the ACF WCM DEIS (0.5' elevation loss during the dry season). The EPA is also concerned that this elevation loss is not fully discussed. The EPA also notes this is not consistent with the modeling conducted by Savannah District as noted above.

The Mobile District has reduced the State of Georgia's allocation request by 40 mgd because of the construction of Glades Reservoir. The EPA understands that for the purposes of the ACF WCM DEIS the construction of Glades Reservoir (whether as a traditional pump storage or as a flow augmentation reservoir) is considered to be a 40 mgd loss from Lake Lanier. However, the Savannah District in the Glades Reservoir DEIS states (on page 4-70), "…additional storage from Glades Reservoir is shown to increase the lake level by 0.5 feet (Alternatives 1-6) when compared to meeting all the demand from Lake Lanier solely (No Action Alternative)." The EPA understands that these are two different EISs and different USACE authorities, but the EPA believes there should be a more consistent approach (between the two USACE Districts) to modeling and evaluating the Glades Reservoir impacts on water storage within Lake Lanier. For disclosure, data and information from the Glades Reservoir DEIS should also be fully discussed in the ACF WCM FEIS.

Recommendation: The EPA recommends that the Glades Reservoir FEIS and ACF WCM FEIS be more consistent especially in modeled impacts related to Lake Lanier elevations. The EPA also recommends that the Glades Reservoir FEIS alternative analysis be conducted using the allocation identified and approved by the Mobile District as reflected in the ACF WCM ROD.

To model and use the pre-decisional allocation identified in the ACF WCM FEIS could unnecessarily and prematurely misrepresent the alternatives analysis.

Pass-Through/Transmission

USACE Policy Change: The Applicant's alternative describes a pass-through/augmentation scenario whereby water is pumped from the Chattahoochee River and held in the Glades Reservoir, but not actually withdrawn from the holding reservoir itself (Glades). Instead, it would be released back into the system via a short remaining stretch of Flat Creek to flow nearly immediately into the headwaters of Lake Lanier for withdrawal from an intake in the downstream (and much larger) Lake Lanier. The DEIS states, "The same quantity of water released from the reservoir would be withdrawn from Lake Lanier via the raw water intake at the existing Lakeside water treatment plant (WTP), which is operated by Gainesville." (pg. ES-7) The EPA is concerned that the creation of a pass-through (or "transmission" or "augmentation") reservoir such as the one proposed in the DEIS would require precedent setting policy changes by the USACE. The EPA understands that the Mobile District must approve this pass-through scenario and it could potentially require a national USACE policy change to implement. However, there is limited discussion regarding this in the DEIS. It is EPA's understanding that this "reallocation" would need approval from the Assistant Secretary of the Army for Civil Works (ASA-CW); therefore, there is a huge assumption that the "pass through" reallocation will be approved by the ASA-CW. The DEIS does not thoroughly explain the USACE approval process nor does it discuss the likelihood and timeframe for this approval process. Additionally, the EPA understands that the Applicant (Hall County) would still need a water storage contract for the volume of water passed through.

The EPA is also concerned that the pursuit of a preferred alternative that is not currently within the ability of the USACE to permit, or that would require unprecedented permitting challenges, appears inconsistent with screening criterion L4. Phase 1-A screening of water supply components included criterion L4: "Must be within the ability of the Corps and the State of Georgia to approve or permit. Must not require unprecedented permitting or logistic challenges that would jeopardize completion in a timeframe consistent with the identified long-term need of Hall County. In particular, must not (1) affect federal facilities or property that would require Congressional authorization, (2) impound Section 10 navigable waterway, or (3) require adoption of new federal policies." (pg. 2-12) It appears to the EPA that this 'pass-through transmission' scenario would require "adoption of new federal policies".

Recommendation: The EPA recommends that the USACE better describe the USACE approval process and clarify the likelihood and timeframe for this approval process. The EPA recommends that the USACE discuss the linkage between the pass through transmission scenario with the need for the Applicant to seek a water storage contract for the volume of water passed through.

Quantifying Water Storage Gain: The EPA is concerned that the DEIS lacks information regarding the quantified gain from holding back water in the proposed Glades Reservoir vs. letting the same volume flow to Lake Lanier for withdrawal. In other words, water in the Chattahoochee River upstream from Lake Lanier would otherwise flow to Lake Lanier without a

detour through the Glades Reservoir. The EPA has specific concerns below that should be addressed in the FEIS.

* The USACE does not adequately discuss the amount of water volume to be held back in a reservoir such as Glades (in close proximity to Lanier) and then released to Lake Lanier for withdrawal from Lanier. The USACE also does not discuss the volume (mgd) or days of supply that would be gained by having the water stored just upstream of Lake Lanier. Additionally, the EPA is concerned that the USACE does not adequately discuss dead storage, transmission losses, and evaporative losses from the additional surface area of such a reservoir. The EPA believes that these losses may be significant and should be quantified and clearly disclosed.
*The EPA is also concerned that the DEIS doesn't sufficiently discuss how soon after a given volume is released from the Glades Reservoir would withdrawal of that same volume be allowed from Lake Lanier.
* The EPA understands that during times of insufficient water supply the availability within Lake Lanier that water will be released from Glade Reservoir via Flat Creek into Lake Lanier. However, there is no discussion in the DEIS regarding the trigger threshold. The EPA also notes that there is no discussion within the DEIS regarding what is considered insufficient water supply and who would make that determination.

Recommendation: The EPA recommends that the USACE conduct a comparative analysis that quantifies benefits between storing water in the Glades Reservoir versus letting the water flow into Lake Lanier for storage. This analysis should consider volumes in mgd and number of days of supply (within Glades), timing/volume of withdrawals from the Chattahoochee River and releases from the Glades Reservoir, trigger mechanisms, and who determines what is deemed insufficient water supply. The analysis should also quantify losses to the Glades Reservoir (such as transmission losses, evaporative losses, etc.) and compare it to losses from letting the water flow into Lake Lanier for storage. Given the significance and controversy related to the ACF WCM, the EPA also recommends that the operation of the Glades Reservoir should be better detailed in the FEIS.

Wetlands and Stream Impacts

The EPA notes again our concern that the size and impacts of the reservoir proposed in the DEIS is disproportionate to the need described. The Section 404 permit application submitted in 2011 described an 850-acre reservoir designed to provide a safe yield of 72.5 mgd. The safe yield used in the DEIS is 50 mgd, yet the reservoir and impacts remain the same size. Furthermore, decreases in projected demand (MNGWPD August 2015) should lead to further reductions in safe yield needed, if any.

Wetlands Impacts: The EPA is concerned with the significant magnitude of wetlands and stream impacts that would result from the proposed reservoir. The EPA is concerned that the DEIS does not properly access the quality and condition of wetlands. Chapter 3 (pg. 3-78) provides data showing that of the 39.2 acres of wetland area that would be directly loss and 65% was characterized as Class 1 or Class 2 ("Fully Functional" or "Minor Adverse Impacts"). Chapter 4 (pg. 4-131), however, describes 89% of the wetland areas as emergent Class 2 and Class 4 wetlands with existing adverse impacts, and only the remaining 11 percent of wetlands as Class 1. The EPA believes that assessing resource condition and quality is critical to correctly gauging environmental impacts, comparing alternatives, and providing compensatory mitigation.

As a results of these concerns, the EPA provided the USACE with comment letters pursuant to the 1992, Section 404(q) *Memorandum of Agreement between the Environmental Protection Agency and the Department of the Army*, on September 18, 2009, and October 1, 2009.

Recommendation: As required by the 2008 *Compensatory Mitigation for Losses of Aquatic Resources; Final Rule* (2008 Mitigation Rule), the EPA recommends that the USACE provide a reliable assessment of the quality and condition of on-site wetlands within the FEIS. Further, the EPA recommends that the USACE's compensatory mitigation credit need calculations be reviewed to ensure that full credit would be provided to offset any impacts incurred.

Stream Impacts: The proposed project would also result in direct loss of 17.8 miles or 94,120 linear feet of Flat Creek and its tributaries. The DEIS states (pg. 3-80) that, "... the majority of Flat Creek and its tributaries appeared to have not been significantly altered by human activity." The DEIS documents assessments of waterbody quality that rated Flat Creek as "very poor". However, field observations during interagency site visits recognized that although some middle reaches of stream on-site had been impacted, likely by silvicultural or agricultural activities, much of the upper and lower resources appeared to be of high quality. More than 80% of the streams on-site are perennial streams, with the remainder being intermittent. Chapter 4's section of the DEIS "Wetlands, Streams, and Other Waters", does not discuss environmental consequences of impacts to streams in any detail that considers the condition or the quality of the resource.

Recommendation: The EPA recommends that the USACE better describe the quality of the streams that will be permanently lost from implementation of an action alternative in the FEIS.

Stream Buffers: Several alternatives now treat the applicant-proposed and alternative reservoirs as direct drinking water sources. The FEIS should specifically address source water protections necessary for direct drinking water sources, such as buffers, use restrictions, erosion mitigation, etc.

Recommendation: Even if the proposed reservoir is not pursued as a direct source of drinking water (i.e., with an intake pipe taking water directly from the impoundment), the EPA recommends that it should receive protections appropriate for water sources. Buffers should be established around the periphery of the reservoir that prohibit development and clearing of the land so as to protect water quality by limiting sedimentation and polluted runoff inputs. Additionally, the EPA recommends that the project impacts associated with sedimentation and stormwater run-off be appropriately mitigated.

Compensatory Mitigation: The EPA is concerned that there is a large range of issues that need to be examined to refine the project purpose and fully analyze the alternatives. In fact, it appears that the LEDPA for meeting the current project purpose would not involve construction of the proposed reservoir. Thus, it is premature to consider detailed compensatory mitigation. However, given the magnitude of direct impacts of the proposed project to aquatic resources and the high quality of much of the stream resources, it is appropriate to plan for compensatory mitigation requirements consistent with the mitigation rule should a reservoir project proceed. The DEIS indicates the intention to purchase mitigation credits in combination from: 1) primary service

areas of multiple USACE-approved mitigation banks located within the Upper Chattahoochee River Watershed (Hydrologic Unit Code [HUC] 03130001), and 2) through an in-lieu fee program (e.g., Georgia Land Trust), given that there are not enough stream credits currently available or predicted to be released.

Recommendation: The EPA recommends that the USACE in the FEIS should consider feasibility of providing sufficient compensatory mitigation for loss of considerable aquatic resources. There would be miles of streams impacted in the Flat Creek watershed, for example, and much of it high quality. Compensatory mitigation credits and payments should be provided up front to ensure they are prioritized. Should the Applicant change plans and propose any permittee-responsible compensatory mitigation, serious consideration should be given to the Applicant's ability to implement whatever mitigation plan is submitted. It has been EPA's experience that is rare for a reservoir mitigation plan that was permitted to be implemented as proposed. In some cases, projects have been constructed while the mitigation plan is still undergoing modification, which is typically not acceptable to the EPA. If full credit purchases and in-lieu fee payments are not provided before construction begins, the Applicant will need to provide substantial financial assurances to guarantee that it can implement whatever mitigation plan is proposed.

CWA Section 404 Permit Special Conditions: With a goal of ensuring that adverse environmental impacts are not incurred prematurely (so as to have unwarranted temporal effects) or even unnecessarily, special permit conditions have been discussed should the proposed project proceed forward. To date, special conditions suggested have included:

* Prohibition on construction until unmet need is documented as being reasonably imminent.
* Prohibition on reservoir construction until treatment and distribution infrastructure is constructed, or at least until progress on establishing infrastructure has been demonstrated.
* Prohibition on construction until all compensatory mitigation is provided.

The DEIS describes on pg. 2-98 special permit conditions and an intermediate permitting option under consideration by the USACE. Inasmuch as they capture the above as geared towards avoiding and minimizing adverse environmental impacts unless and until truly warranted, the EPA concurs with the approach. However, incremental phasing such that a large reservoir (originally sized to provide safe yield greater than 70 mgd) would be constructed to meet a small (13 mgd) interim need that may never be exceeded raises concerns. The environmental impact of such a project would be disproportionate to the use, and inconsistent with the proposed purpose and need. Should demand change in the future such that no more than 13 mgd were ever needed, 17.8 miles of streams and 39.2 acres wetlands would have been lost for a relatively small need that likely could have been met with a less environmentally impactful alternative (i.e., the LEDPA for the project had it been appropriately scoped). Furthermore, the DEIS states (pg. 1-13) that the County and the City have agreed to postpone the renewal of the Cedar Creek Reservoir/North Oconee River withdrawal permits until the impacts of the potential changes in Lake Lanier water allocation quantity and the ACF Basin WCM Update are better understood.

Recommendation: The EPA recommends that small interim uses not be permitted by the USACE. Given that Hall County is permitted to pump 20 mgd daily from the North Oconee

River for storage in the Cedar Creek Reservoir, which has an accepted calculated yield of 7.5 mgd use of Cedar Creek, the EPA recommends that these measures should be pursued before any new reservoir construction for small interim yields. Further, the EPA recommends this should be required via permit conditioning.

Impacts of Water Withdrawals on Water Quality Chattahoochee River below the proposed Glades Reservoir intake (Technical Memorandums 1 and 2, Appendix O):

Instream Flow Protection Threshold (IFPT) Methodology: The development and review of the operation of the Glades Reservoir is directly premised on the availability of certain withdrawal rates from the Chattahoochee River above Lake Lanier. All alternatives in Chapter 2 assume that the six mile stretch of river below the proposed Glades Reservoir intake above Lake Lanier can be reduced to the 2-stage minimum flows developed in the DEIS. Due to the importance of those available flows for the operation of the reservoir and the viability of the project, it is critical to ensure that the values and the analysis on which they were developed in the DEIS are done correctly and adequately represent the projected impact.

The Applicant submitted a water withdrawal permit application to the Georgia EPD in May 2011 that requested a minimum instream flow equal to the Annual (A) 7Q10 (the lowest 7 days of flow in a 10 year period) below the Glades Intake on the Chattahoochee River. That is, the request asked to be allowed to take all flows down to and leaving a minimum instream flow of the A7Q10. This would leave those reduced flows in the approximately 6 miles of River above Lake Lanier. The 7Q10 is a statistical value used to approximate the most critical low flow conditions expected during a 10 year period. The EPA notes that this statistic is most commonly used under the Clean Water Act in mathematical equations used to calculate the effluent limits for toxic criteria. It is not a value that is intended for setting minimum flows or which has any inherent protection for aquatic life or other designated uses. It should not be used for any determination requiring aquatic protection outside of calculating permit limits for toxics.

During the development of the DEIS, an analysis was conducted to develop more refined minimum low flows rather than using the A7Q10 alone. That analysis resulted in a 2-stage minimum flow of 30% of the Annual Average Daily Flow (an average of all flows in a year) or 277 cubic feet per second (cfs) for the months of February through May and the A7Q10, or 154 cfs, for the months of June through January. The DEIS refers to these as the Instream Flow Protective Thresholds (IFPT) and states that they are not intended to be minimum instream flows. However, the 2-stage minimum flows approach do appear to be minimum instream flows. These are the flows used in the Alternatives Analysis.

Recommendation: The EPA does not support the IFPT or minimum flows approach as developed. The EPA recommends that the IFPT should be re-evaluated based on the following comments and the PAA re-analyzed in light of those changes. That is, the rates of withdrawal that are being used in the calculation to both fill and replenish a reservoir may need to be re-evaluated to ensure protection on the Chattahoochee River. Further, the presentation of the impacts to the Chattahoochee River below the intake and the conclusions drawn are found to be confusing and should be represented in a more clear and comprehensive manner.

Flow Below the Intake: The EPA provided detailed comments (dated June 4, 2014) to the USACE on the original Technical Memorandum (TM) 1 and TM 2, regarding concerns with the analysis and determination of appropriate flows needed to ensure that the water quality criteria and the designated uses would be met in the 6 miles segment downstream of the water withdrawal on the Chattahoochee River. Specifically, the EPA was concerned that the flow analysis primarily considered only a comparison of low or minimum flows. Due to the importance of those available flows for the operation of the reservoir and the viability of the project, it is critical to ensure that the values and the analysis on which they were developed in the DEIS are done correctly and adequately represent the projected impact. Appendix O of the DEIS includes an updated analysis dated July 15, 2014, that appears to include some revisions based on the EPA's comments. However, the EPAs comments were not fully addressed. The analysis is still primarily a comparison of low flows based on the Georgia Instream Flow Policy and not the state water quality standards. That analysis resulted in a 2-stage minimum flow allowed below the intake of 30% of the Annual Average Daily Flow (AADF - an average of all flows in a year) of 276 cubic feet per second (cfs) for the months of February through May and the Annual 7Q10 of 154 cfs, for the months of June through January. The DEIS refers to these as the Instream Flow Protective Threshold (IFPT) and not minimum flows, however, they are in fact, minimum flows. A comparison of the derived IFPTs show that they are significantly lower than the current average monthly flow or the AADF. For instance, the March average monthly flow is shown as 1,400 cfs. Under the IFPT for March, flows would be allowed to go down to 277 cfs, or a reduction of 80%, or if compared to the AADF, that would be a 70% reduction in flows. The EPA notes that the summary on pg. 6 of the first memorandum in Appendix O that states that the flow alteration projections are listed as 9.7% and the conclusion is then drawn that the withdrawals are, therefore, within the standards typically considered protective. It is unclear how that percentage was derived or how a 70% - 80% removal was justified or analyzed. The EPA has updated our comments from June 2014 to address the new information in the July 2014 Technical Memoranda which are attached for reference. The EPA has included an attachment to this enclosure that provides greater details on the EPA Water Quality Technical Analysis (See Attachment 1).

Recommendation: The FEIS should include a chart that includes both the current monthly average flows, the AADFs and the proposed 2-stage low flows so that it is easier to identify the proposed change in flows. The FEIS should include a clear analysis that shows the percentage reductions in flows in smaller time steps (daily or monthly rather than averages done annually) and an analysis of how the recommended flows are protective consistent with the state of the current literature as referenced in the attached comments.

An IFPT should not be derived solely as a low flow analysis: The IFPT is for, "...the purpose of instream flow management for the protection of a healthy aquatic environment." However, the evaluation in this TM is a comparison of different low or minimum flows only. For instance, the effects on the aquatic community are repeatedly compared under an annual 7Q10 versus a monthly 7Q10. This appears to originate from two sources: the Applicant's request to use the annual 7Q10 and the use of the Georgia Interim Flow Strategy. The result is that the TM compares the sufficiency of two low flow approaches, annual and monthly 7Q10, constraining the analysis and potentially biasing the result. As described below, a low flow analysis should not be the sole basis for determining an IFPT.

Recommendation: The EPA recommends that the analysis be more correctly termed the "minimum instream flow" or MIF analysis as originally named by the Applicant as it may be confusing to refer to this as an IFPT.

Low flow analyses are not state-of-the-science for deriving IFPT: The science regarding instream flows has developed and improved significantly over the past 40 years. The scientific community is in wide agreement that flow criteria should support the natural flow regime as a whole, and that standards for minimum flow alone are not sufficient for maintaining ecosystem integrity (Poff et al. 1997, Bunn and Arthington 2002, Annear et al. 2004, Freeman and Marcinek 2006). Minimum flow standards do not address the full range of seasonal and inter-annual variability of the natural flow regime. The natural fluctuation of water in rivers and streams is critical for maintaining aquatic ecosystems because aquatic biota have developed life history strategies in response to these fluctuations (Stalnaker 1990, Hill et al. 1991, Postel and Richter 2003). Comprehensive flow criteria not only identify magnitude but also the timing and duration required to support ecosystem health (Poff et al. 2010). While the State of Georgia allows the use of 7Q10 design flows to be used in calculations for determining effluent limits in NPDES permits, this value is solely used for waste assimilation calculation purposes only. The Instream Flow Council (IFC) recommends developing standards that incorporate natural patterns of intra- and inter-annual variability in a manner that maintains and/or restores riverine form and function, to best maintain ecological integrity (Annear et al. 2004). There are now over 200 different methodologies in place that would allow the derivation of site-specific flow regime components in addition to optimal flow magnitude. The EPA welcomes the opportunity to provide resources for any and all information needed to conduct an actual IFPT that is based on developing flow-ecology relationships for aquatic life protection and ensuring that the biological integrity is maintained.

Recommendation: The EPA recommends that the USACE develop an IFPT that is consistent with current scientific literature based on a range of flows.

Flow data collected for the minimum instream flow analysis may be useful for calculating or deriving part of an environmental flow regime: Current methodologies should be employed in an instream flow study to develop a flow regime that is protective of multiple endpoints, the narrative and numeric criteria, and the designated uses. The list of references provided for the TM do not include documents consistent with a state-of-the-science instream flow study. Low flows are part of the natural hydrograph, but constitute only one part that generally occur in the driest parts of the year. The low flow data collected to date could be used constructively and correlated with ecological function and endpoints such as floodplain connectivity. This "building block" methodology supports a "natural flow paradigm" that more closely resembles natural conditions (Poff et al. 1997), and should include both seasonal low and high flow conditions.

Once the low flow threshold is developed, additional studies could be conducted to determine other components of the flow regime that are protective. It should be noted that there is growing consensus in the ecological flow literature regarding the amount of disturbance that can be expected to cause impact to the aquatic community. For instance, the Percent-of-Flow (POF) approach "explicitly recognizes the importance of natural flow variability and sets protection

standards by using allowable departures from natural conditions, expressed as percentage alteration" (Richter et al. 2012). The POF approach is relatively simple to implement and may provide a high degree of protection for designated uses. A compilation and review of multiple studies (Richter et al. 2011) found that the expert results were "quite consistent" on the percent of deviation that provided protection for aquatic life. Specifically, that a moderate level of protection was maintained if flow deviated across the hydrograph by no more than 11-20%. A high level of protection was assumed with a 0-10% reduction (See Figure 1 below).

The EPA provides this as one example of an approach and welcomes the use of other scientific studies that could be used to develop recommended flows. However, it is important to ensure that the findings of the IFPT are consistent with relevant literature and the EPA is concerned that findings presented in the DEIS are not consistent.. For example, the conclusions presented in the TM resulted in flows that were 16% of the AADF for 8 months (154 out of 922 cfs) and 29.7% of the AADF for 4 months (276 cfs). That is, rather than preserving 80% of the flows as recommended by Richter's review, the recommendation for a significant amount of the year would be to preserve as little as 16% of the flows, removing over 80% of flows. In addition, instream studies specific to the Piedmont region of Georgia found that streams may "...begin to experience species losses if permitted withdrawal exceeds about 0.5 to one 7Q10-equivilent of water." (Freeman and Marcinek, 2006). If the A7Q10 is used for comparison in this case, those flows at which it would be expected to see species loss would be at 0.5 to 1 of approximately 156 cfs or removing 78 to 156 cfs. However, the range of flows projected to be removed using the recommended IFPT could be as high as 1,123 cfs (1,400 cfs – 277 cfs) during the month of March. The EPA is unaware of any studies that demonstrate protectiveness at these extreme levels. In addition, the recommended time increments for most studies are done to reflect daily, weekly, biweekly, or monthly variation. The TM does not articulate how a two-phased approach is protective or consistent with an ecological flow study.

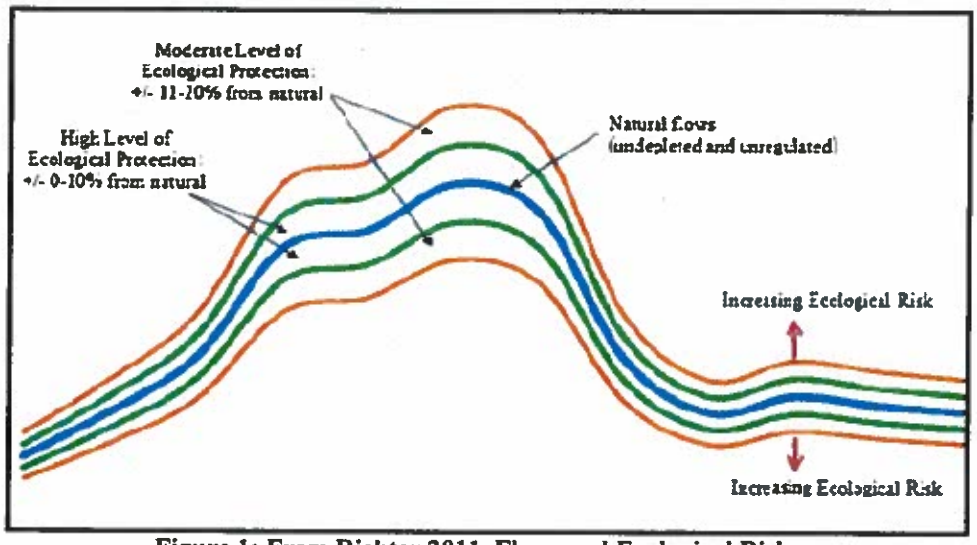
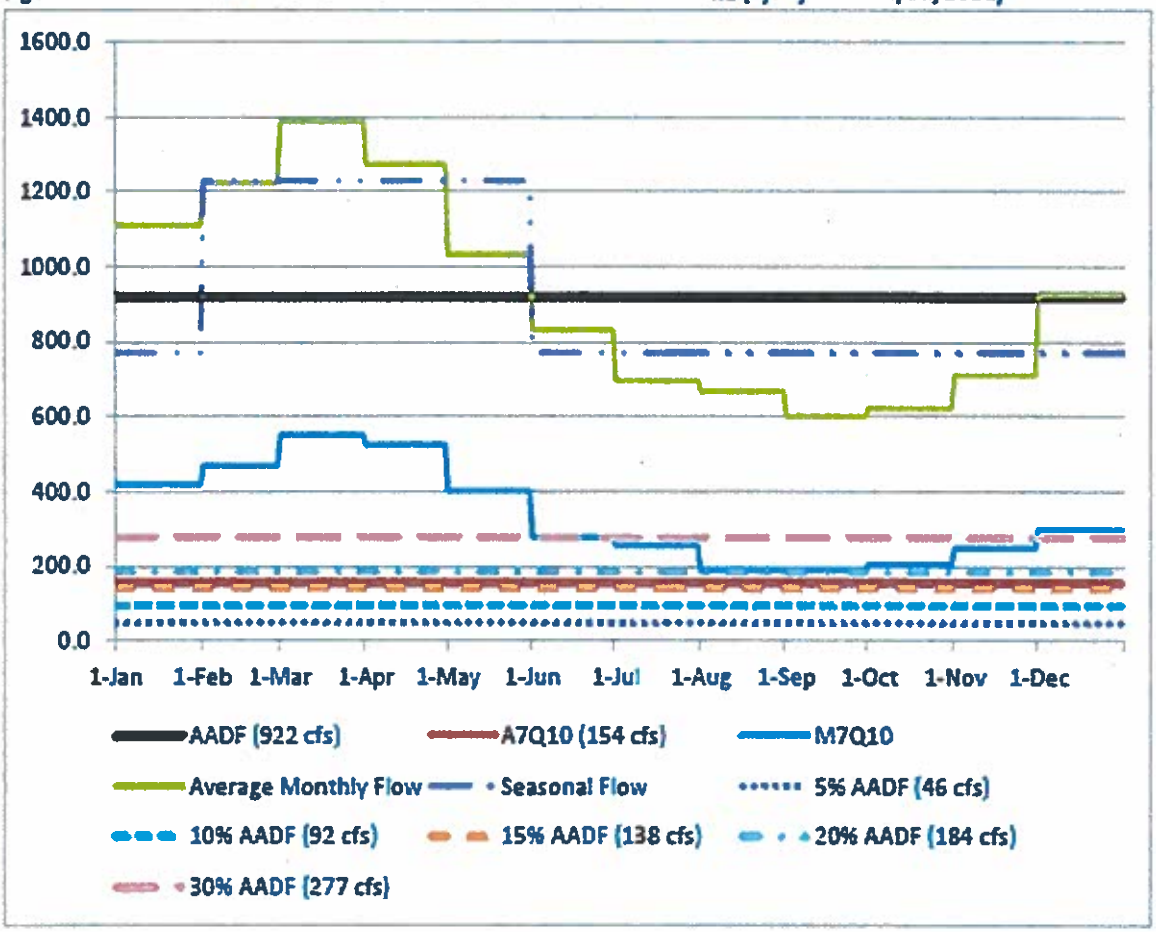


Figure 1: From Richter 2011. Flows and Ecological Risk

Recommendation: The EPA recommends that the USACE consider in the FEIS that flows be developed more consistently with the scientific literature regarding both the flows selected and the time increments at which they apply.

Sustainable Flows: The EPA is concerned that the results of the IFPT are presented as falling within the sustainable boundaries for flow protection, when they are not within those boundaries. The TM1 in Appendix O states that the "proposed pumping is estimated to reduce the AADF (922 cfs) by approximately 9% for the Applicant's proposed project." As stated above, the actual impact would be to alter flow by greater than 80%.

Figure 2. Flow Scenarios Evaluated at the Chattahoochee River Intake (8/21/1957-12/31/2012)



Recommendation: In order to most accurately represent the proposed change in flows, it is recommended that the Average Monthly Flow from Figure 2 of the TM1 be graphed together with the IFPT final recommended scenario represented in Figure 2 of TM2 (See above). This would allow the public, agencies and other stakeholders to discern the difference between the Average Monthly Flows and the proposed minimum flows. For instance, that would ensure that both graphs have the same values in the y-axis for easy comparison (currently Fig. 2.) Also, in that manner, one can see that during June the Average Monthly Flow would go from approximately 1,400 cfs to 277 cfs or that during December the Average Monthly Flow would go from approximately 922 cfs to the A7Q10 of 156 cfs.

Safe Yield Analysis: The safe yield analysis was used to determine the recommendation of the IFPT. The IFPT should be done to determine the flows that would protect and maintain the

aquatic community. It appears that the safe yield analysis was used to determine the flows rather than determining first what flows would be needed to protect aquatic life.

Recommendation: The EPA recommends that the safe yield analysis not be part of the instream flow study in future NEPA documents.

Benefits to the System: The EPA is concerned that the DEIS presents a considerable amount of subjective value judgment about the alternatives analysis, and confuses the Applicant with an entity described as "the system", with benefits "to the system" ascribed to various aspects of the alternatives. The DEIS describes the addition of storage from this proposed project as "slightly beneficial to the system operation under these assumptions because it increases the Lake Lanier water level and does not affect operation downstream of Buford Dam." The DEIS also provides that the Glades Reservoir with a larger safe yield (Alternatives 1-6 with 42 mgd or 30 mgd) provides a slightly greater benefit to the ACF system than a Glades Reservoir with a smaller safe yield (Alternatives 7-9 with 17 mgd), and that White Creek Reservoir provides less benefit to the system as it is a smaller site with lower usable water supply storage and its maximum safe yield is lower than Glades Reservoir. The DEIS does not adequately explain this conclusion. It is also unclear how an additional reservoir upstream, which pumps water from the Chattahoochee River and holds it in an impoundment, could raise the level of the lake when that same water would otherwise flow to the lake directly. The EPA is concerned that the USACE has not documented the reservoir's losses from an overall system due to infrastructure and evaporative losses and we are concerned this has not been properly considered when determining the "benefits" to the system. We are also concerned that the DEIS does not document how this offers increased storage. Furthermore, the net effects on stream flows into Lake Lanier, and on lake levels, is inconsistent in the DEIS. Chapter 4 describes changes to flow into Lake Lanier in terms of magnitude of flow change and duration (% of time) that the system would experience given ranges of change in flow. For the proposed alternative, flows are expected to decrease 37% percent of the time, mostly by 0-5% (Table 4.13). Daily flows into Lake Lanier are expected to be increased 63% of the time, with 0-5% changes occurring 45.6% of the time according to Table 4.12. In the Executive Summary, on the other hand, changes to flows are described as follows (page ES-12): "The average daily flow into Lake Lanier will not change for the Proposed Project and Alternatives 1, 4, 7, and 10, which release the water supply form Glades Reservoir to Lake Lanier via the Chattahoochee River. When the water supply is pumped from the reservoir to Lakeside WTP (Alternatives 2, 5, 8, 11) or a new WTP near Glades Reservoir (Alternatives 3, 6, 9), the average flows into Lake Lanier will be reduced by 1.3% to 3.2%."

Even if the project were to raise Lake Lanier levels, the EPA is concerned about the subjective judgement of deeming this a "benefit to the system" merely based on lake level changes. The project would also entail reducing flows in the Chattahoochee River, the loss of 39.2 acres of wetlands, and the loss of 17.8 miles of streams, all of which are part of this system, as well.

Recommendation: The EPA recommends that the USACE better describe "benefits to the system" and consider other permanent losses to the system such as 17.8 miles of streams and 39.2 acres of wetlands.

Evaporation

The EPA is concerned regarding how evaporation was calculated in the DEIS. The average daily net evaporation from the Glades Reservoir was calculated to be in the range of a 0.54 to 0.58 mgd net loss (with maximum daily gains of 4.82 mgd and maximum daily losses of 3.40 mgd). Chapter 3 states, "For the purpose of determining future evaporation from the proposed reservoir sites, the USACE (Mobile District) provided net evaporation data, based on observed conditions at Lake Lanier (potential evaporation losses from each reservoir site will be discussed in Chapter 4)." However, the additional detail in Chapter 4 appears limited to the statement, "Due to the proximity of the Proposed Project and its alternatives to Lake Lanier, the same net evaporation rate was used to determine the net evaporation volume for both Lake Lanier and for Glades and White Creek alternatives." The EPA is unsure if the "observed conditions" at Lake Lanier were based on Eddy Covariance measurements or pan evaporation. Also, it is unclear if the observed net evaporation measurements cover the full time period from 1938-2011 (Figure 4.46), or were the evaporation rates modeled.

Recommendation: The EPA requests additional information on how evaporation was calculated in the FEIS.

Air Quality

The EPA appreciates that the air quality section has been revised from the pre-Draft EIS to focus on PM2.5 as the pollutant of concern, rather than CO, as we recommended. We also note that the discussion on conformity has also been revised to address our earlier environmental concerns. In our pre-Draft EIS comments, we also recommended that the USACE check all web links cited in the Air discussion to ensure they worked, but the published DEIS includes web links that are not active.

Recommendation: The DEIS makes frequent use of web addresses as references. Several of the EPA web addresses cited, such as those on page 4-197, are no longer valid. The EPA switched to a new web platform on or around September 30, 2015, and many of EPA's webpages have new web addresses and some content may have changed. The EPA recommends that the EPA web addresses on pg. 4-197 be updated and those throughout the document be verified in the USACE's preparation of a FEIS.

Climate Change

Climate Change/Green House Gas (GHG) Analysis: The EPA acknowledges that the USACE conducted a comparative CO2 sequestration analysis for deforestation related to the construction of the two separate reservoir alternatives and conducted a CO2 emissions inventory for operations of the Water Treatment Plant (WTP) (4.7 Energy Needs and Climate (Greenhouse Gas), page 4-124). The EPA notes that the USACE did not conduct a GHG emissions inventory for activities related to the construction of the reservoirs, transmission pipes and WTP (i.e., emissions related to operating heavy construction equipment). The EPA notes that the White House Council on Environmental Quality (CEQ) has developed draft guidance to assist federal agencies in disclosing GHG and climate change impacts in NEPA documents in the "Revised Draft Guidance for Greenhouse Gas Emissions and Climate Change Impacts" [9]. Example tools for estimating and quantifying GHG emissions can be found on CEQ's NEPA.gov website [10].

Recommendation: The EPA recommends that the USACE conduct a GHG emissions inventory and comparative analysis associated with reservoir construction activities to include transmission pipes and WTP. We also recommend including description of measures to reduce GHG emissions associated with the project, including reasonable alternatives or other practicable mitigation opportunities and disclose the estimated GHG reductions associated with such measures. For example, energy efficient pumps or construction machinery. EPA further recommends that the ROD commits to implementation of reasonable mitigation measures that would reduce or eliminate project-related GHG emissions.

Climate Change Adaptation: Changing climate conditions can affect a proposed project, as well as the project's ability to meet its purpose and need. In addition to considering the resilience and preparedness of a facility itself, in some cases adaptation measures could avoid potentially significant environmental impacts. For example, for projects like this one designed to manage water resources, we recommend considering potential changes in precipitation, snow pack, and drought. Increases in flow rates due to these factors could lead to dam failures, while decreases in flow could lead to difficulty in providing expected water volumes. In this example, a dam failure could lead to dramatic changes in sediment transport, water quality, and habitat, among other potential impacts.

Recommendation: Include in the "Affected Environment" section of the FEIS a summary discussion of climate change and ongoing and reasonably foreseeable climate change impacts relevant to the project, based on U.S. Global Change Research Program assessments and consider how those impacts may affect the alternatives under consideration [11].

[9] https://www.whitehouse.gov/administration/eop/ceq/initiatives/nepa/ghg-guidance
[10] https://ceq.doe.gov/current_developments/GHG_accounting_methods_7Jan2015.html
[11] http://www.globalchange.gov

Attachment 1

EPA Water Quality Technical Analysis

TM No. 1: Glades Reservoir DEIS — Instream Flow Protection Threshold Analysis for the Proposed Water Intake on the Chattahoochee River, April 28, 2014

The purpose of the TM is stated as an "evaluation of instream flow protection threshold (IFPT) scenarios below the proposed Glades Reservoir intake on the Chattahoochee River." The IFPT is defined in the TM as "instream flow management for the protection of a healthy aquatic environment." Similarly, the document states that the IFPT is used to "convey the purpose of instream flow management for protection of a healthy aquatic environment" and differentiates it from the applicant's original term of "minimum instream flow." The EPA appreciates and supports the USACE approach emphasizing the need to protect healthy aquatic flows when hydrologic alterations are evaluated, an area that the EPA has emphasized for the past several years to the States and tribes as an essential protection under the CWA to protect designated uses, criteria and anti-degradation requirements. This is especially critical in the context of studies from the U.S. Geological Survey, and other studies globally, which conclude that hydrologic alteration is a leading cause of ecological impairment. In our comments below, we provide information and suggestions to the IFPT study to ensure consistency with the CWA, in this case Sections 303, 401, 402, and 404. We also provide information on the "state-of-the-science" for instream flows including guidance for ecological flows for the protection of aquatic life and note where the DEIS is inconsistent with those studies. These comments are consistent with the EPA comments for all the areas in the southeast where new or existing hydrologic alteration may impact water quality, including other USACE projects, water control manual updates, water withdrawal permits and Federal Energy Regulatory Commission re-licensing.

The EPA approved State Water Quality Standards should be used as the basis for the IFPT rather than Georgia's Interim Instream Flow Policy: The TM states that it relied on the Water Issues White Paper, Georgia's Interim Instream Flow Protection Strategy, Board of Natural Resources, State of Georgia, May 2001 (hereafter, Georgia Interim Flow Strategy). Selected approaches from that paper appear to be the basis for the approach taken in the IFPT analysis. The EPA notes that the Georgia Interim Flow Strategy has not been submitted to the EPA for review and approval under Section 303(c) and, therefore, cannot be used for CWA purposes. As one goal of the DEIS is to ensure compliance with the CWA, the correct requirements to rely on are the State of Georgia's EPA-approved Water Quality Standards (WQS) found at Georgia Rules for Water Quality Control Chapter 391-3-6.03, Water Use Classifications and WQS. The rules state, in part, that:

> *"The purposes and intent of the State in establishing Water Quality Standards are to provide enhancement of water quality and prevention of pollution; to protect the public health or welfare in accordance with the public interest for drinking water supplies, conservation of fish, wildlife and other beneficial aquatic life, and agricultural, industrial, recreational, and other reasonable and necessary uses and to maintain and improve the biological integrity of the waters of the State... 'Biological integrity' is functionally defined as the condition of the aquatic*

community inhabiting least impaired waterbodies of a specified habitat measured by community structure and function."
391-3-6-.03(2)(a) and 391-3-6-.03 (3)(b)

Therefore, the IFPT should be designed to meet narrative and numeric WQS and to maintain and improve the biological integrity of the waters of the State, as described in more detail below.

While the EPA has not reviewed the Georgia Interim Flow Strategy under the CWA, the EPA would like to note the following regarding its use as the basis for an IFPT:

- The Georgia Interim Flow Strategy states that, "...although DNR's 7Q10 rule is designed to protect water quality, it is NOT based on the science of how much water should remain in a stream to maintain a healthy aquatic community" (original emphasis, pg. 26). The strategy makes reference to "water quality" as maintaining assimilative capacity for permitted wastewater. The document states, in part, that the 7Q10, "... is the flow at which the Environmental Protection Division (EPD) develops mathematical water quality models used to set NPDES permit limits." Those limits are generally set at levels so that the discharge will not violate applicable WQS at the point of discharge at that flow. While maintaining assimilative capacity for wastewater discharges is important, that review does not serve as a basis to ensure that all applicable state WQS will be met in that water body, including the protection of the designated uses and meeting all narrative and numeric criteria.
- On page 2 of the TM it states, "In a letter to the Georgia Department of Natural Resources Environmental Protection Division (EPD) dated May 20, 2011, Hall County (the Applicant) requested that the A[nnual]7Q10 be approved as the IFPT required at the proposed water intake on the Chattahoochee River" based, in part because, "the Chattahoochee River is a highly regulated stream; in such streams, the IFPT is determined on a case-by-case basis by EPD and the Georgia Department of Natural Resources Wildlife Resources Division (WRD)." This appears to reference a section of the Georgia Interim Flow Strategy that requires all new applicants to meet the interim instream requirements unless they are on a highly regulated stream such as the Chattahoochee. The Georgia Interim Flow Strategy clarifies that this one exception to the policy is for streams whose flows are "significantly determined by the operation of federal reservoirs." However, this section of the Chattahoochee River is not regulated. The project intake is deliberately and notably upstream of Lake Lanier's backwater and, therefore, not controlled by a federal reservoir. Therefore, even using the Georgia Interim Flow Strategy, the Applicant should not have considered an Annual 7Q10, and as we note below, neither annual nor monthly 7Q10 flows are values that inherently ensure adequate habitat for aquatic life. Additionally, the Applicant states that "the requested IFPT will allow the proposed project to produce a very high safe yield at an economical cost." As noted below, the IFPT should be evaluated for aquatic life protection; not based solely on economics.
- The requirements under the Georgia Interim Flow Strategy include three options: 1. Monthly 7Q10, 2. Site-specific Instream Flow Study Option, or 3. Mean Annual Flow Options. The final recommendation in the TM is a combination of 30% of the Annual Average Daily Flow for four months and the Annual 7Q10 for 8 months. These flows are significantly lower than even the prescribed options in the Georgia Interim Flow Strategy as show on TM Figure 2 below.

TM No. 1 Specific Comments: Glades Reservoir Environmental Impact Statement—Instream Flow Protection Threshold Analysis for the Proposed Water Intake on the Chattahoochee River:

The EPA is concerned that the analysis of dissolved oxygen (DO) and temperature effects between the proposed intake and Lake Lanier is being constrained to a water quality analysis to satisfy considerations for the Section 401 Water Quality Certification, with additional analyses to follow for the FEIS after additional hydrologic modeling is complete. This implies that other water quality parameters and impacts found later would not be of concern under a Section 401 water quality certification or would not be analyzed robustly. If there is potential for water quality impacts to occur further downstream, whether in the Chattahoochee River or in reservoirs, they should be analyzed up front for the Section 401 certification and under the NEPA. The EPA is concerned that this is an artificial separation which may unnecessarily complicate the analysis or lead to confusion.
The EPA recommends that the USACE include a discussion of the tradeoffs of different pumping capacities, measured by the rate of change in river flow. This metric is relevant to the impacts on both recreation and aquatic life uses.

The TM states that, "Non-point source pollution (caused by rain events/stormwater pollution) has been identified as the potential source for the fecal coliform or occasional biota violations; these parameters are not affected by the change in flow in the river resulted from the proposed filling operation for the reservoir." However, the lower quantity of water in the river (post withdrawal) will provide less dilution for runoff. The EPA recommends evaluating the likelihood of fecal coliform and biota violations to ensure that the withdrawal will not cause or contribute to violations for these parameters.

TM No. 2: Supplemental Impacts Analysis: Flow Impacts to Fish Community and Recreational Use Downstream of the Proposed Raw Water Intake in the Chattahoochee River

In order to begin the process of developing an ecological flows analysis that is more consistent with scientifically approved methods, the following suggestions are made. In addition, the EPA would welcome the opportunity to work collaboratively to continue to provide input and technical references to support this work.

It is essential that Physical Habitat Simulation System (PHABSIM) include representative and sensitive species. For example, particular consideration should be provided for rare, fluvial, and state protected species such as *Cyprinella callitaenia* (Blue Striped Shiner), and likewise for *Percina nigrofasciata* (Blackbanded Darter) -- which may mask occurrences of the cryptic and rare species of concern: *Percina crypta* (Halloween Darter). The PHABSIM model presented in the TM does not appear to be representative of indigenous, fluvial species: three species used in the model are not present in the Chattahoochee Basin (based on occurrences and distributions in Fishes of Georgia at http://fishesofgeorgia.uga.edu/), and two species (*Nocomis leptocephalus & Lepomis auritus*) are relatively insensitive to flow with generalist habitat preferences.

Species Selected (re-presented from Technical Memo)

Common Name	Scientific Name	Lifestage	Habitat	Chat. Basin?
Northern Hogsucker	Hypentelium nigricans	Spawning, Fry	Shallow/Fast & Deep/Fast	No
Bluehead Chub	Nocomis leptocephalus	Young	Shallow/Fast & Deep/Fast & Deep/Slow	Yes
Margined Madtom	Noturus insignis	Adult	Shallow/Fast	No
Central Stoneroller	Campostoma anomalum	Adult	Shallow/Fast	?
Generic Shallow Fast Guild	n/a	?	Shallow/Fast	n/a
Spotted Bass	Micropterus punctulatus	Spawning	Deep/Fast & Deep/Slow	?
Redbreast Sunfish	Lepomis auritus	Adult, Fry, Spawning	Deep/Fast & Deep/Slow	Yes
Silver Redhorse	Moxostoma anisurum	Young	Deep/Fast	No

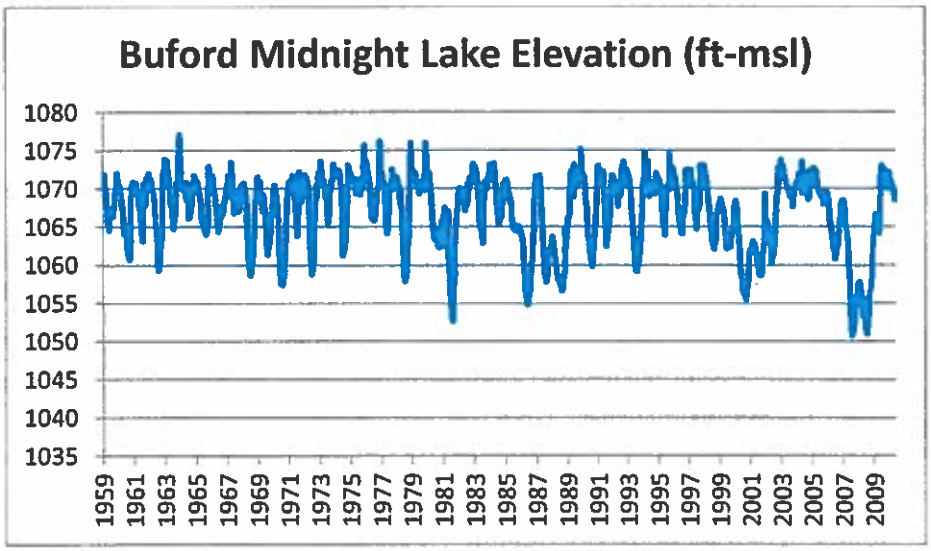
The EPA notes that the Upper North Chattahoochee section proposed as a water withdrawal site is a "High Priority Species Stream" pursuant to the State Wildlife Action Plan (more information at http://www.georgiawildlife.com/node/1377) and should be provided commensurate ecological flow protection.

Field sampling was completed in three winter excursions in November and December of 2012. The EPA recommends explaining how this is representative of conditions year round or the critical conditions of August. The EPA recommends a more representative approach to field sampling.

The TM states that, "For the purposes of this evaluation, an 18-inch water depth and 5-foot width was deemed sufficient to allow downstream passage through shoals while minimizing the risk of grounding the paddle craft." Additionally, the TM should consider a broader range of ecological endpoints, rather than the needs of only a few taxa. Endpoints for the flow analysis, in addition to the biological endpoints considered (i.e. fish community) could include physicochemical parameters (e.g. temperature and DO), geomorphic parameters (e.g. sediment dynamics), or functional parameters (e.g. riparian connectivity). In particular, the flow analysis should determine an acceptable withdrawal rate so that pumping and rapid changes in flow do not cause losses in the aquatic community.

Recommendation: The EPA recommends that the USACE describe how these depths and widths were determined quantitatively to be protective of recreation.

Page 19 of the TM states that, "The potential for impacts to navigation are expected to occur only within the section of the Chattahoochee River above the normal pool surface water elevation (1071 feet above mean sea level or ft-msl) of Lake Lanier." The USACE should consider the backwater level corresponding to Lake Lanier pool elevations from about 1050-1075 ft-msl; not simply the normal elevation. During periods of low flow, it is more likely that the Lake Lanier pool surface water elevation will be lower, affecting a larger section of the embayment, tributary, and river. Buford Lake elevations, especially in the past decade, have spent the preponderance of the time near Flood Pool at 1065 ft-msl. It is likely that a transect in the vicinity of Belton Bridge Road would strengthen the model by extending the area analyzed to further downstream.



Source: http://water.sam.usace.army.mil/gage/acfhist.htm

Page 20 of the TM references, but does not define, "critical reductions." What percent in Weighted Usable Area (WUA) constitutes a "critical reduction"?

The TM findings include the statement that, "The highest WUA for the broadest assemblage of these [year-round resident game fish] species occurred at a flow range of 10-30% AADF" and "Within the study area, the estimated optimal ecological flow for the broadest assemblage of year-round resident fish (including game fish and non-game fish) is generally between 10% (92 cfs) and 30% AADF (276 cfs)." The times when 30% AADF provided the highest WUA/optimal ecological flow was not described. When are those times? Why are the times when 30% AADF provided the highest WUA/optimal ecological flow not considered in the recommendation? In recommending the 2-stage timing breakout, the recommendations only reference recreational boating access. The optimal ecological flows for resident fish should be addressed.